

broader and shorter terminal pieces, and larger spines on the edge. At the ventral edge of this series the terminal pieces are somewhat shorter. This form of foot is represented in the seventh (Pl. VI. fig. 2).

The tenth foot shows a notable increase in the size of the ceratophore of the dorsal cirrus, and whilst the foot is proportionally shorter, the dorsal and ventral lobes are larger and longer. On the eleventh foot the ceratophore has nearly doubled its length, so that it is not much shorter than the long—almost filiform—cirrus projecting from its tip. The dorsal and ventral lobes have also increased in size.

At the fourteenth foot (Pl. VI. fig. 3) the great development of the ceratophore of the dorsal cirrus is evident, the slender cirrus projecting from a basal region which is longer than itself. Both specimens agree in respect to this region, and, as no sexual elements are visible, it would appear to be unconnected with the ripe condition, and, so far as known, with sex; yet it is well to wait for more complete specimens before deciding the question of species.

This genus was established by Malmgren* in 1867 for a species obtained by the distinguished Swedish zoologist, Sven Lovén, on the shores of his country.

It has not been thought necessary at present to do more than indicate the differences between these imperfect examples and the European form.

7. On the Norwegian Nereidæ collected by Canon Norman, D.C.L. &c.

Three common species were dredged, viz., *Nereis pelagica*, *N. Dumerilii*, and *N. diversicolor*.

EXPLANATION OF PLATE VI.

Fig. 1. Head and anterior segments of *Ceratocephala* near *Loveni*, Malmgren, Gulf of St. Lawrence, Canada. Enlarged.

Fig. 2. Seventh foot of the foregoing. Magnified.

Fig. 3. Fourteenth foot. Similarly magnified.

Fig. 4. Bristle of *Ceratocephala*. \times Zeiss oc. 2, obj. D.

XXXVIII.—*List of the Fishes collected by Mr. W. L. S. Loat at Gondokoro.* By G. A. BOULENGER, F.R.S.

THE Survey of the Fishes of the Nile, undertaken by the Egyptian Government in response to the appeal of the late Dr. John Anderson in 1899, has recently been extended into

* 'Annulata Polychæta,' p. 176.

the Uganda Protectorate, arrangements having been made for Mr. W. L. S. Loat, the Superintendent of the Survey, to spend a few weeks at Gondokoro. No attention had been paid to the fishes of that district since the expedition of Mr. and Mrs. Petherick in 1863, on which occasion Dr. J. Murie made a small collection which has been described by Dr. Günther*.

Mr. Loat's stay at Gondokoro lasted from the beginning of January 1902 to the end of March, during which period, in spite of severe illness, he was able to bring together some three hundred specimens of fishes, referable to thirty-nine species, a small number as compared to those obtained at other points on the White Nile. But he informs me that Gondokoro is a most unsatisfactory place to fish at, and that the same is true of the station of Lado on the opposite bank of the Nile, according to the statement of the officers of the Congo Free State, whose experience extends to other periods of the year. In fact they derive very little benefit from the fishes for their subsistence, owing to the difficulty of procuring them and to the insipid nature of the flesh of most of the kinds which occur there, the Bolti (*Tilapia nilotica*) and the Nile Perch (*Lates niloticus*) being the only exceptions. Although I believe instructions were issued from headquarters in Brussels to preserve fishes, if possible, for transmission to the Congo Museum, the Belgian officers have so far been unable to do anything to assist in this branch of natural history.

The collection made by Mr. Loat is therefore one of great value for the study of the distribution of the Nile fishes, even if not realizing the hopes that were entertained at the outset of the expedition; and it is not quite deficient in novelties, since it contains the type of a new Cichlid fish of the genus *Paratilapia*, a genus not previously known to be represented in the Nile, although occurring in Lake Victoria. This new fish is named *Paratilapia Wingatii*, after

* Petherick's 'Travels in Central Africa,' ii., Appendix C (1869).—Gondokoro is the southernmost locality at which fishes were obtained by the Petherick expedition. Dr. Günther states (p. 201) that Mr. Petherick collected "on an affluent of the White Nile (B. il Gazal and Djoor) south of Gondokoro." This is evidently a slip, the Bahr el Ghazal and its upper range, the Djoor or Jur, is, as correctly shown on Petherick's own map in the first volume of the work, north, and not south, of Gondokoro. The fishes brought home from Gondokoro belong to the following species:—*Clarias lazera*, C. & V.; *Schilbe mystus*, L. (*S. dispila*, Gthr.); *Mochocus niloticus*, Joann. (*Rhinoglanis typus*, Gthr.); *Ophiocephalus obscurus*, Gthr.; and *Anabas Petherici*, Gthr.

the Sirdar, Sir Reginald Wingate, to whose assistance, so kindly granted to Mr. Loat on his journey through the Soudan, the success of this part of the Nile Fish-Survey is in no small measure due.

Unless otherwise stated, the fish mentioned in the following list were caught in the White Nile itself. Examples of four species were obtained from a large lake, name unknown, in the forest about 6 miles N.E. of Gondokoro.

Polypteridæ.

1. *Polypterus bichir*, Geoffr.
2. *Polypterus Endlicheri*, Heck.
3. *Polypterus senegalus*, Cuv.

This is the only common species of the genus at Gondokoro, the two others being rare.

Mormyridæ.

4. *Marcusenius Isidori*, C. & V.
5. *Gnathonemus cyprinoides*, L.
From the lake.
6. *Hyperopisus bebe*, Lacep.
Also from the lake.
7. *Mormyrus Hasselquistii*, C. & V.

Characinidæ.

8. *Hydrocyon Forskalii*, Cuv.
9. *Hydrocyon lineatus*, Blkr.
10. *Alestes dentex*, Hasselq.
11. *Alestes baremose*, Joannis.
12. *Alestes nurse*, Rüpp.
13. *Alestes macrolepidotus*, C. & V.
14. *Micralestes acutidens*, Ptrs.
15. *Distichodus brevipinnis*, Gthr.
16. *Nannocharax niloticus*, Joannis.
17. *Citharinus latus*, M. & T.

Cyprinidæ.

18. *Labeo coubie*, Rüpp.
 19. *Barbus perince*, Rüpp.
 20. *Barbus camptacanthus*, Btkr.
 21. *Barilius niloticus*, Joannis.
 22. *Barilius Loati*, Blgr.

Found abundant in running water.

23. *Chelæthiops bibie*, Joannis.

Several specimens were obtained, together with *Barilius niloticus*, *Nannocharax niloticus*, and *Mochocus niloticus*.

Siluridæ.

24. *Clarias lazera*, C. & V.
 25. *Schilbe mystus*, C. & V.
 From the lake.
 26. *Clarotes laticeps*, Rüpp.
 27. *Chrysichthys auratus*, Geoffr.
 28. *Auchenoglanis biscutatus*, Geoffr.
 29. *Auchenoglanis occidentalis*, C. & V.

Two species have been confounded under the name of *A. biscutatus*, both occurring in the Nile and the Senegal. *A. occidentalis*, to which the Chartoum specimens of Petherick's collection belong, differs in the longer snout (longer than the rest of the head), the shorter maxillary barbel (not extending beyond the centre of the eye), and the dark spots on the fins, if present, larger and separated by a network of the ground-colour. *A. biscutatus* was by far the commoner of the two at Gondokoro.

30. *Synodontis schall*, Bl. Schn.
 31. *Synodontis frontosus*, Vaill.
 32. *Synodontis batensoda*, Rüpp.
 From the lake.
 33. *Mochocus niloticus*, Joannis.

Cichlidæ.

34. *Hemichromis bimaculatus*, Gill.

35. *Paratilapia Wingatii*, sp. n.

Depth of body equal to length of head, 3 times in total length. Snout with slightly convex profile, as long as the eye, which is $3\frac{1}{2}$ times in length of head and slightly exceeds interorbital width; maxillary extending to below anterior border of eye; two series of minute teeth in each jaw, and an outer series of much larger ones; 4 series of scales on the cheek; large scales on the opercle. Gill-rakers very short, 9 on lower part of anterior arch. Dorsal XIV 10; spines increasing in length to the last, which measures nearly half length of head; soft portion pointed, the longest ray $\frac{3}{4}$ length of head. Pectoral obtusely pointed, $\frac{2}{3}$ length of head. Ventral produced into a filament, extending beyond origin of anal. Anal III 6; third spine as long as and stronger than last dorsal. Caudal rounded. Caudal peduncle a little longer than deep. Scales strongly ctenoid, $31\frac{3}{11}$; lateral line $\frac{20}{9}$. Pale brown, with iridescent gloss, and five dark brown bars on the body; three horizontally elongate blackish-brown spots on each side, the first from the eye to above the axil, involving a steel-blue opercular spot, the second on the lower lateral line below the last dorsal rays, the third at the base of the caudal fin; a vertical blackish-brown bar below the eye; dorsal fin greyish brown, bright orange at the base, with blackish spots at the base of some of the spines; anal greyish, with three darker light-edged ocelli on the soft rays; ventrals yellow, with the outer rays bluish black; caudal greyish, with rather indistinct crowded darker spots.

Total length 60 millim.

A single specimen was obtained on the 10th March with other small fish from the river. In spite of diligent search, Mr. Loat was not able to secure further examples.

Paratilapia Bloyeti, Sauvage, from Usagara and Lake Kivu, appears to be the nearest ally of this new species.

36. *Tilapia nilotica*, L.

As in the specimens previously collected by Mr. Loat in the White and Blue Niles, the parent carrying the eggs or young in the mouth and pharynx is invariably the female. I have examined over thirty such nursing individuals from Mr. Loat's collection, measuring from $3\frac{1}{2}$ inches to about a foot.

37. *Tilapia galilæa*, Hasselq.38. *Tilapia Zillii*, Gerv.

Tetrodontidæ.

39. *Tetrodon jahaka*, Hasselq.